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ABSTRACT

The paper examines several statements often considered to be basic recommendations emerging from recent research on effective teaching. Each statement is examined in terms of what is known about the effect of context on the particular recommendation. Statements examined are the following: (1) Teachers who set and communicate high expectations to all their students obtain greater academic performance from those students than teachers who set low expectations; (2) Student achievement rises when teachers ask high level questions; (3) Teachers should employ random patterns of calling upon students to recite in order to ensure high rates of attention and continued involvement in the cognitive demands of the lesson; (4) Effective teachers should minimize "call-outs" by pupils to maintain order and to increase academic learning time; and (5) Effective teachers promote self-sufficiency by encouraging students to take responsibility for their own classwork. (CB)

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Research on Contextual Effects and Effective Teaching

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The term effective teaching has become an educational "buzz word" in recent years. As national report after national report on the educational process has decried the current state of affairs, educators have attempted to point out what is known about teaching and what great strides have been made. Many have suggested that there is a well-established and highly generalizable set of teacher behaviors which if practiced consistently and with fore-thought should result in enhanced student learning and achievement. Others have responded that what constitutes effective teaching, while better researched and understood at present than it has been in the past, is still elusive and open to various interpretations. Much of the research purporting to represent this area suffers from a diversity of conflicting operational definitions, a failure to take into account the effect of extraneous variables such as student characteristics in the teaching-learning process, and unreliable or invalid assessment techniques. The major purpose of this symposium is to examine alternative definitions and methodologies employed in the search for effective teaching. Each paper will focus on a particular issue involved in the search for effective teaching.

In their landmark work The Study of Teaching (1974), Dunkin and Biddle critiqued the research to that date that related to teaching. They organized the research into a model composed of presage, process, product and context variables, relating each set to various teacher behaviors. One of their major findings was that researchers had failed in many cases to determine whether a particular observed effect applied over a wide range of teaching contexts. They believed that context variables should either be built into the design of teaching effectiveness studies or controlled through the choice of teachers, students and instructional content with resulting statements as to the limitations of their generalizations. Without such procedures, they feared a tendency to overgeneralize research findings and a premature willingness to make educational prescriptions based upon them.

Brophy and Good (1986) as well as others believe that research has still not adequately addressed the limitations of context variables, although progress has been made. Variables such as grade level and subject matter content, age, aptitude and socio-economic differences in pupils, school and district policies and school and community expectations all potentially interact with effective teaching practice. Failure to attend to these interactions leads to sets of recommendations defining effective teaching that are over-simplified and sometimes misleading.

An example of such a set of recommendations is found in the recent US Department of Education publication What Works:

Research About Teaching and Learning (1986). While laudable in its attempt to present the latest research information on effective teaching to a relatively unsophisticated readership, it nevertheless tends to present applications of the research literature as if they were scientific "givens" rather than interpretations of existing evidence drawn from often limited data bases.

For the rest of this paper, I would like to identify several statements often considered to be basic recommendations emerging from recent research on effective teaching. Each statement will be examined in terms of what is known about the effect of context on the particular recommendation.

1) Teachers who set and communicate high expectations to all their students obtain greater academic performance from those students than teachers who set low expectations (What Works, 1986, page 32)

While it would be convenient to follow such a straight forward tenet, it is over-simplified. We have all known teachers who expected great things from their students; some lived up to their teachers expectations, others did not. It once was fashionable to refer to teachers who expected the same of everyone as inflexible, rigid or someone who was more interested in the subject matter than in students. Was this past reference completely erroneous?

The research literature does not support such a sweeping statement. While it is true that high expectations correlate with high academic achievement for students who already have

attained high achievement levels in the past, students with histories of low achievement require realistic expectations be communicated to them. In summarizing the Texas Teacher Effectiveness Study (1974), Brophy and Evertson observed that teachers who produced the most achievement in low SES classrooms motivated primarily through gentle and positive encouragement, rather than through challenge or demandingness. The low SES students were often struggling and anxious, and it was important that effective teachers in these classes made assignments that students could easily master. Lessons moved in small steps with greater amounts of teacher explanation, practice and repetition. This pattern suggests moderate expectations, rather than high ones are most appropriate for low SES - low achieving pupils.

Subject matter content also may moderate the effect of teacher's expectations. In studying effective teachers in junior high English and mathematics classes, Evertson, Anderson, Anderson and Brophy (1980) caution that relationships between the components of direct or active instruction (which includes high expectations) and achievement are not evident in learning environments where there are not a discrete set of highly specific objectives. In the English classes observed by these researchers, a wide variety of content and activities was included as part of the curriculum, rendering the use of post course achievement tests invalid as a measure of effective teaching. Even the most effective English teachers frequently differ as to the goals and objectives of the courses they teach so that clear communication of expectations is often not possible. The statement that high expectations improve

achievement may be true only in those courses where specific objectives can be identified, agreed upon and then clearly communicated as in most classes in mathematics or basic skill areas.

2) Student achievement rises when teachers ask higher level questions (What Works 1986, p. 38)

Many Educators have long criticized the lack of higher level questions used by teachers in class discussions, and it is probably true that ineffective teachers rarely go beyond questions requiring recall. A recent review of the relationship between cognitive level of questions and achievement by Brophy and Good (1986) does not support this recommendation, however. As they state:

> "The data refute the simplistic notion that higher level questions are categorically better than lower-level questions. Several studies indicate that lower-level questions facilitate learning, even learning of higher-level objectives. Furthermore, when the frequency of higher-level questions correlates positively with achievement, the absolute numbers on which these correlations are based typically show only about 25% of the questions asked were classified as higher level. In general, we should expect teachers to ask more lower-level than higher-level questions, even when dealing with higher-level content and seeking to promote higher-level objectives" (p. 363).

Research by Gall, Ward, Berliner, Cahen, Winne, Elashoff and Stanton (1978) is illustrative of the many studies of this topic. They examined the effects of different frequencies of higher level questions during recitation, on the achievement of sixth grade students following a specialty unit on ecology. One group of students received 25% higher-level questions, the second group

50% and the third group 75%. An unpredicted effect was that the 50% treatment was less effective than the other two for promoting acquisition and retention of facts, but slightly more effective for promoting performance on higher-cognitive level tasks. The scores of the 75% group were slightly less than the 25% group, even on higher-level cognitive measures. Other research by Martin (1979), Ryan (1974) Dunkin and Doenau (1980), and Tobin and Capie (1982) also reflect inconsistent relationships between level of qustion and achievement.

What seems to be ignored in the statement that higher-level questions aid achievement is any consideration of the particular purpose of a lesson and the specific intent of individual questions. It would appear that different kinds of questions perhaps fluctuating from low to high levels of cognitive complexity and then back, may be most appropriate depending on the teacher's objective. For example, in trying to encourage divergent responses, factual questions to ascertain known facts might precede a more open-ended, high level question requiring implications or speculation, then followed by more low-level questions to expand or verify the divergent answer. Thus a higher level of thinking might be obtained with only a small percentage of the total questions asked being higher-level themselves. This formulation awaits further research of course, but it does suggest a question X objective interaction which effective teachers might consider rather than a general rule that the more higher level the questions the better.

3) <u>Teachers should employ random patterns of calling upon students to recite in order to ensure high rates of attention and</u>

continued involvement in the cognitive demands of the lesson.

This recommendation has long been a procedure recommended in teaching methods courses. It apparently draws upon operant conditioning research in which intermittent reinforcement was found to maintain behavior more effectively than fixed schedules where reinforcement was expected on a regular basis. Not knowing when one is to be called upon, the student (it is assumed) will strive to stay alert for fear of being caught napping. Group attention is thus maintained and as a result classroom disruptions decrease (Kounin, 1970).

As research has indicated, random patterns of calling on students are hard to maintain. Studies of teacher expectations indicate that interaction with students is influenced by variables such as physical characteristics, social, ethnic and religious background, socioeconomic-status, sex, and perceived ability of the student (Braun, 1976). One of the ways in which these expectations influence teacher behavior is that attention is more frequently directed towards those students whom we expect to answer correctly and away from those we do not. As a result, certain students may be inadvertently ignored under a random pattern. In small-group settings (such as first grade reading) where it is important that everyone participate at some point, a predetermined pattern of involvement may be most appropriate. On the other hand, during instructional activities in which prompt exchange of ideas is desired, a more random or non-planned sequence would be most suitable. Even during these types of activities however, teachers may want to pre-select certain

reticent students and call upon them at opportune times in order to ensure their viewpoint is contributed.

4) **Effective teachers should minimize "call-outs" by pupils in order to maintain order and to increase academic learning time.**

This recommendation appears to ignore lesson objectives and the socio-economic mix of the students involved. In their review of teacher behavior and student achievement, Brophy and Good (1986) observe that student call-outs correlate positively with achievement in low-SES classrooms, but correlate negatively in high-SES settings. When students are eager to respond as in high-SES settings, call-outs may in fact be disruptive and serve to minimize time spent on academic tasks. In low-SES classes however, where voluntary responses are less frequent; teachers may need to reinforce relevant responses, even if they are out of turn.

It would appear important, particularly in upper grade levels to encourage volunteering if one wishes to involve students in class discussion. This requires pausing after asking questions, allowing adequate wait time for answers to be formulated, as well as occasionally calling upon those students who rarely volunteer. Accurate call-outs may be dealt with through praise for the correct answer but an expression of dissatisfaction with the failure to request permission.

5) **Effective teachers promote self-sufficiency by encouraging students to take responsibility for their own classwork** (Tikunoff, Berliner & Rist (1975)).

In their ethnographic analysis of successful elementary

level teachers in reading and math classes, these authors noted the value of having students who took responsibility for their own efforts. Teachers who established classroom rules and procedures which decreased time away from academic work, and minimized disruption due to transitions, changes in assignments, collecting and delivering papers, etc., seemed to have classrooms where achievement scores were higher than the average. Rules requiring students to be responsible for turning in and picking up their own papers, making use of their time when the teacher is not available or when they have finished required tasks and following cues designed to reduce out-of-seat behavior are all part of effective teacher behavior.

This is the sort of recommendation that few can quarrel with in terms of its value in improving achievement, but which begs the question of how student responsibility is promoted and how one deals with students whose developmental level precludes mature behavior. One suspects that with many elementary school students merely establishing rules requiring responsible self-management would be insufficient. Activities, communications and tasks preceding the rule setting stage would appear far more significant, in enabling students to attain mature work-relevant behavior than the setting of rules itself. In Durkin and Biddle's terms, (1974) the promoting of self-sufficiency would appear to interact with presege variables such as teacher planning and preparation. Observation of effective teachers in the pre-instructional phase of teaching would seem to be a missing ingredient in the effective teaching literature.

One might continue to identify the sorts of interactions exemplified here in a wide variety of other areas related to effective teaching. I believe that the point has been made, however; teaching in an effective manner requires innumerable decisions in which context must always be considered. Without attention to context variables, current effective teaching recommendations are only a beginning in efforts to improve educational practice. Prescriptions must become more cognizant of the variety of factors that influence the teaching-learning process. Researchers can aid this effort by including careful consideration of context in their designs, either through control or through studies which apply treatments across a wide variety of settings. Once established, findings must carefully be reported so that the eagerness displayed by many individuals or agencies to report simplistic truths about teaching is tempered with fact.

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